EXHIBIT VIII

ESTIMATE OF EMISSIONS FROM STORAGE OF ORGANIC LIQUIDS

Two types of emissions occur from fixed roof tanks such as found at the CCP. Breathing loss is the expulsion of vapor from a tank through vapor expansion and contraction, which are the results of changes in temperature and barometric pressure. This loss occurs without any liquid level change in the tank. The combined loss from filling and emptying the tank is called working loss. The following equations estimate emissions from tanks with vertical cylindrical shells and fixed roof.

Breathing Loss

$$L_B = 2.26 \times 10^{-2} M_V \left(\frac{P}{P_A - P}\right)^{0.68} D^{1.73} H^{0.51} T^{0.50} F_P C K_C$$

Where:

L_B = fixed roof breathing loss (lb/yr)

M_V = molecular weight of vapor in storage tank (lb/lb mole)
Assume distillate fuel No. 2 = 130 lb/lb mole

P_A = Average atmospheric pressure at tank location (psia)
15.7 psia

P = True vapor pressure at bulk storage liquid conditions (psia)
0.0031 psia (at 40° F) (using 40° F will result in a conservative upper limit estimate for Prudhoe Bay.)

D = tank diameter (feet)
29 feet

H = Average vapor space height, including roof volume correction
Assume 90% of tank height (30 feet) = 27 feet

T = Average ambient diurnal temperature change (° F)
Assume 20° F

C = Adjustment factor for small diameter tanks
0.98

K_C = Product factor.
1.00

Inserting values for variables in equation we get
$L_B = 2.26 \times 10^{-2}$ (130lb/lb mole) $(0.0031/15.7-0.0031)^{0.68}$ $(29)^{1.73}$ $(20)^{0.5}$ (0.98) (1.0) = **70.18 lb/yr.**

Working Loss

$L_W = 2.40 \times 10^{-5} M_V P V N K_N K_C$

L_W = Fixed roof working loss

M_V= Molecular weight of vapor in storage tank (lb/lb mole)
Assume distillate fuel No. 2 = 130 lb/lb mole

P = True vapor pressure at bulk liquid temperature (psia)
0.0031 psia (40°F)

V = Tank capacity (gallons)
153,342 gallons

N = Number of tank turnovers per year

$$N = \frac{\text{total throughput per year (gal)}}{\text{total tank capacity (gal)}}$$

$$N = \frac{24,552 \text{ gal}}{153,342 \text{ gal}} = 0.160$$

K_N = turnover factor
1.0

K_C = Product factor
for all organic liquids other than crude oil = 1.0

Inserting values for variables in equation we get:

$L_W = 2.4 \times 10^{-5}$ (130) (0.0031) (153,342) (0.16) (1.0) (1.0) = **0.237 lb/yr.**

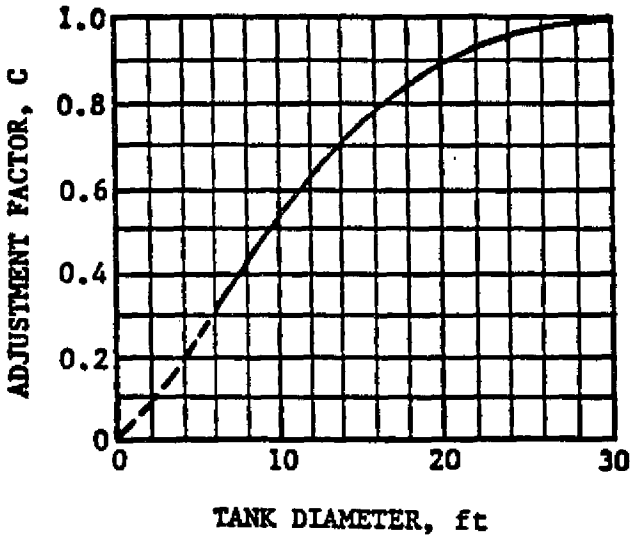

Figure 4.3-4. Adjustment factor (C) for small diameter tanks.[2]

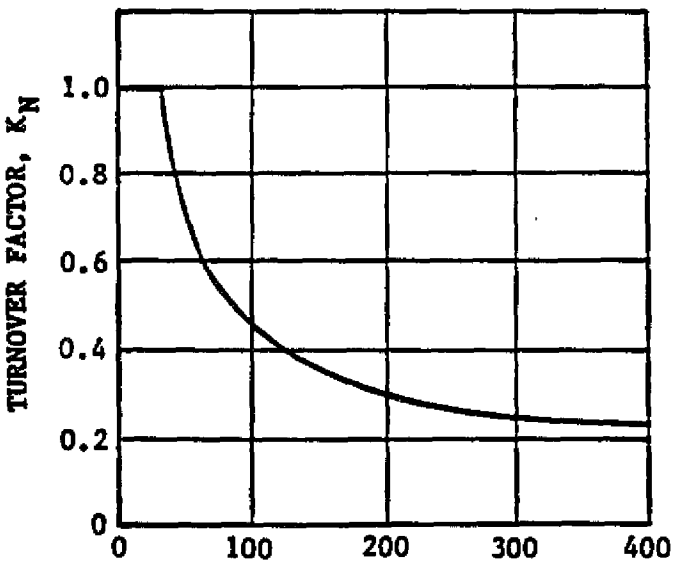

Figure 4.3-7. Turnover factor (K_N) for fixed roof tanks.